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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Project | Date | Author KMO

SUBJECT—

TITLE

1940 FOREST INSECT SURVEY, STANISLAUS NATIONAL FOREST

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by
S. T. Carlson
Berkeley, California
November 19, 1940

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Forest Insect Laboratory
Berkeley, California
November 19, 1940

1940 FOREST INSECT SURVEY,

STANISLAUS NATIONAL FOREST

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1940 FOREST INSECT SURVEY, STANISLAUS NATIONAL FOREST

SCOPE AND METHODS OF SURVEY

The 1940 forest insect survey of the Stanislaus National Forest was made October 1-16, 1940 by the Forest Insect Laboratory, Berkeley, California. The survey work was carried out by a four-man crew. Members of this crew were Dr. DeLeon, Noel Street, Gilbert Acosta, and S. T. Carlson. The costs of the survey were borne by the Forest Insect Laboratory.

The survey this year was directed toward covering the bark-beetle activities in the commercial pine type and in some of the more important recreational areas, notably Clark's Fork and Pine Crest Infestation Units. A revision of the boundaries and size of the previously established infestation units was made this season (see maps). Two Infestation Areas, the North Stanislaus, comprising 18 infestation units, and the Stanislaus - Yosemite Infestation Area, comprising 14 infestation units were set up. The total gross area of these infestation units is approximately 539,000 acres.

Sample plot cruises (Table I) and road strip counts supplemented by topographic viewing and general observations were used as the basis for arriving at the final 1940 loss estimates. No new sample plots were established. The Berkeley Hill Sample Plot (SS-3), 320 acres in size, was entirely cut over by logging operations this fall and was therefore not covered by the survey.

GENERAL INFESTATION CONDITIONS

The 1940 infestation for the most part has shown a decreasing tendency. In comparing the infestation units, the greater losses due to barkbeetles have occurred on the better sites, particularly in the Hermit Spring, Smoothwire and Pine Crest Units. Here the mountain pine beetle infestation in sugar pine and the western pine beetle infestation in ponderosa pine have held up to the 1939 status.

Artificial control measures have not been recommended for any of the infestation units except for the highly used portion of the Pine Crest Unit[1]. The Jeffrey pine beetle infestation in the Clark's Fork

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1/ Carlson, S. T. October 24, 1940. "Memorandum for Forest Supervisor J. R. Hall. Re: 1940 Forest Insect Infestations, Stanislaus National Forest."

Recreational Area and Brightman Flat Area where artificial control measures were carried out during the spring of 1940, has subsided.2/

INSECTS AND HOST TREES INVOLVED.

The mountain pine beetle (Dendroctonus monticolae Hopk.) has not shown any particularly aggressive tendencies. All of its attacks were confined principally to sugar pine.

The western pine beetle (Dendroctonus brevicomis Lec.) has not shown any increasing tendencies except for local areas.

The characteristic top-killing of ponderosa pines resulting from attacks made by Pityophthorus spp. was prevalent during June and early July of this year. The damage was wide spread over the entire forest, but was particularly severe in the Smoothwire, Upper Skull Creek, Pine Crest, Long Barn and Dodge Ridge Units. A special study of this type of killing was made by the survey crew and will be covered in a later report by Dr. DeLeon.

Ips engraver beetles were relatively inactive except for a local area in the Pine Crest Unit. Many top-kills in sugar and ponderosa pines occurred in this unit southwest of Strawberry Lake. There was some follow-up of further attacks in the top-killed trees by western pine beetles and mountain pine beetles.

2/ Carlson, S. T. December 15, 1939. pp 4 and 5 of "1939 Forest Insect Survey, Stanislaus National Forest".

CONDITIONS IN UNIT AREAS (Tables II, III)

I. North Stanislaus Infestation Area

Endemic infestations prevail in the following units:

Brightman	Folsom	Mokelumne
Lyons	Blue Mtn.	Stanislaus
Dodge Ridge	Dorrington	South Grove
Dry Meadow	Mt. Knight	Long Barn
South Grove	Dardanelle	Clark's Fork

Skull Creek Unit: Infestation light except for portion along the east side. This is in a belt of the heaviest infestation in the forest, extending southward through the Smoothwire, Dry Meadow, Pine Crest, Long Barn and Dodge Ridge Infestation Units. The heaviest infestation in the Skull Creek Unit is in ponderosa pine where combination Ips - western pine beetle attacks have resulted in scattered group kills.

Smoothwire Unit: The infestation here is principally in mature ponderosa and sugar pine north of the middle fork of the Stanislaus River. A strip cruise of 160 acres in size shows a loss so far during 1940 of 3 ponderosa pines and 4 sugar pines with a volume of 45,000 board feet. This strip sample, W½ W½ S 24, T 5 S, R 17 E, lies within the boundaries of the proposed Stanislaus Experimental Forest Area. A general reconnaissance of the proposed experimental area showed a loss similar to that shown on the sample strip in section 24. The proposed experimental forest contains a mixed coniferous stand, the pine of which is old to mature and overmature; consequently, the loss of a few trees in the area represents a relatively large volume loss per tree.

Pine Crest Unit: The infestation in this unit has not shown any material change since 1939 except for the additional activity of Ips engraver beetles in sugar and ponderosa pines. Top-killing by Pityophthorus appears to be more heavily concentrated in this unit than in other parts of the forest. Since portions of this unit are under intensive recreational use, the loss of trees from insect attacks and other agencies should be controlled as an annual practice. Most generally, snags resulting from insect-killed trees are removed annually from the intensively used areas because of their hazard to human welfare and property. The cost of treating the infested trees would not materially increase the removal cost and therefore should be incorporated with the snag removal job. This could be accomplished to best advantage in late winter or early spring when the insect broods are more or less inactive. It is estimated that during the spring of 1941, 50 or 60 pine trees could be effectively treated. The estimated total pine loss for 1940 is 200 trees with a volume of 500,000 board feet.

II. Stanislaus - Yosemite Infestation Area.

1940 insect infestations are endemic in this area. The infestation is centered on the higher elevations of the better sites. 1940 pine loss estimates are shown in Table III. The following infestation units are contained in this area:

Cherry Valley	Canyon	Groveland
Clavey	El Portal	Buck Meadows
Confidence	Moss Creek	Bull Creek
Duckwall	Ackerson Mdws.	Anderson Valley
Jawbone	Big Creek	

SUMMARY

The 1940 forest insect survey shows that insect infestations have shown a decline since 1939. The infestation is centered for the most part in ponderosa and sugar pines on the better sites. The heaviest losses have occurred this season in a belt about five miles wide extending from the Smoothwire Unit on the north, southward to the Dodge Ridge Unit.

During June and July there was a noticeable top-killing in ponderosa pine by Pityophthorus.

Control action as a permanent procedure has been recommended in connection with snag removal in the highly used recreational areas, notably portions of the Pine Crest Unit. In the Clark's Fork and Brightman Flat Units where artificial control measures were used in a Jeffrey pine beetle infestation in the spring of 1940, there has been very little new barkbeetle activity. Control is not recommended for any of the infestation units other than the intensively used portion of the Pine Crest Infestation Unit.

The total estimated pine loss on the 539,000 acres surveyed is 10,435 trees with a volume of 13,593,000 board feet.

TABLE I. MEASURED PLOT LOSSES, 1938, 1939, 1940*

Plot	Species	1938			1939			1940*		
		No. Trees	Volume b.m.	Volume per A.	No. Trees	Volume b.m.	Volume per A.	No. Trees	Volume b.m.	Volume per A.
Squaw Hollow	PP	67	50,160	157	36	23,840	75	11	13,640	
(SS-1)	SP	3	930	3	4	340	1			
320 acres	Total	70	51,090	160	40	24,180	76	11	13,640	
Jawbone	PP	14	33,760	106	7	25,520	80	9	30,580	
(SS-2)	SP				1	8,800	27	1	3,040	
320 acres	Total	14	33,760	106	8	34,320	107	10	33,620	
Mokelumne Hill	PP	16	43,720	137	12	52,430	164	8	9,950	
(SS-4)	SP	2	15,570	49	3	22,020	69	3	25,730	
320 acres	Total	18	59,290	186	15	74,450	233	11	35,680	
Pine Crest	PP	3	6,990	44						
(SS-5)	SP	1	6,270	39	1	3,060	19	2	320	
40 acres	JP				1	2,620	16			
	Total	4	13,260	83	2	5,680	35	2	320	
Dorrington	PP	2	60	2	3	3,380	84	2	210	
(SS-6)	SP									
40 acres	Total	2	60	2	3	3,380	84	2	210	
Buck Meadows	PP	1	3,480	87				1	1,760	
(SS-7)	SP									
40 acres	Total	1	3,480	87				1	1,760	

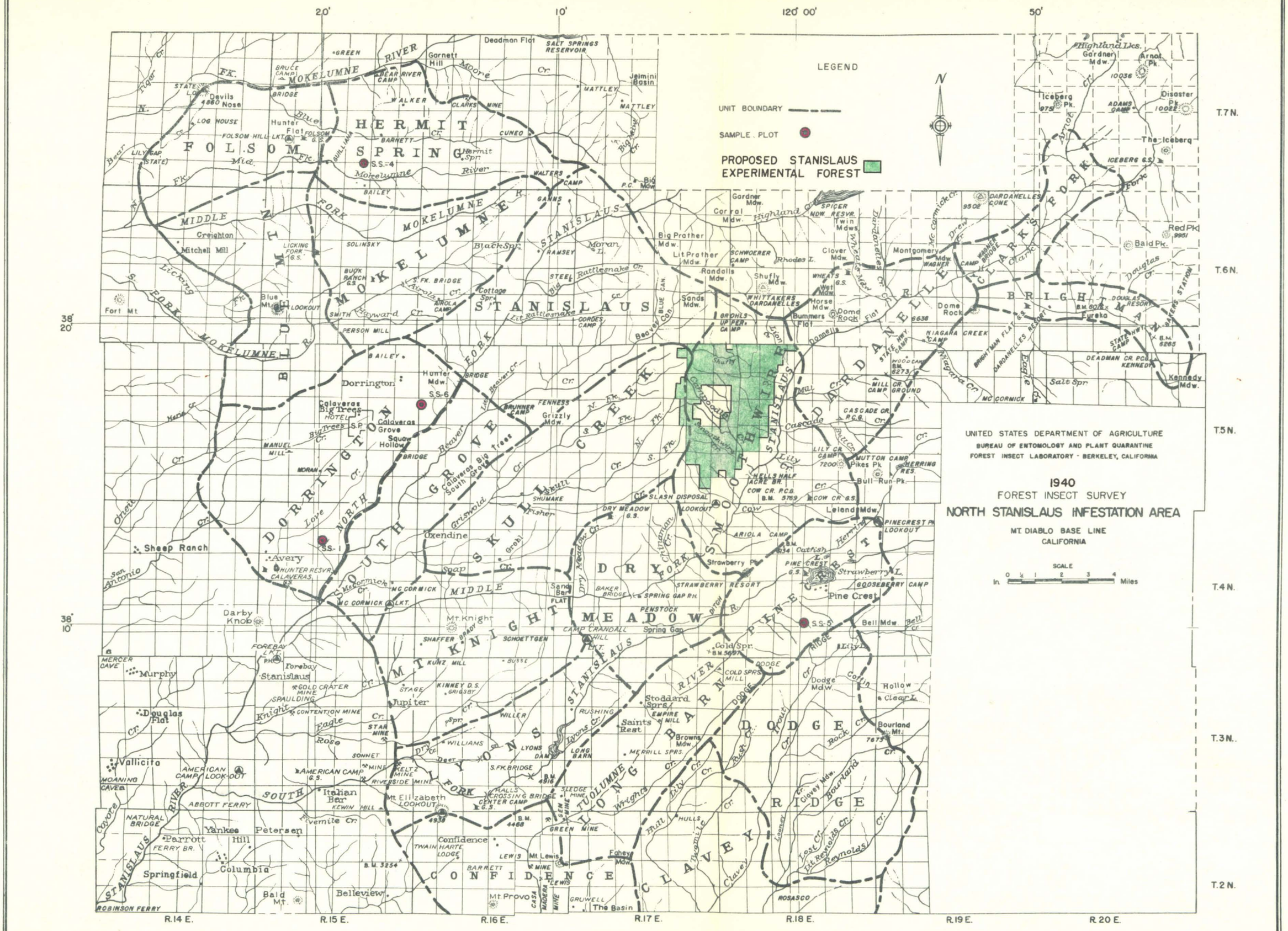
* 1940 overwintering losses are incomplete. Complete losses cannot be determined until June 1941.

TABLE III

ESTIMATED 1940 PINE LOSSES
STANISLAUS - YOSEMITE INFESTATION AREA

Unit	Area* (acres)	No. Trees	Volume MBM
Cherry Valley	8,913	240	250
Clavey	26,242	400	80
Confidence	22,177	350	70
Duckwall	17,756	250	175
Jawbone	30,235	800	800
Canyon	10,054	50	5
El Portal	2,067	20	5
Moss Creek	5,633	25	5
Ackerson Meadows	17,684	300	210
Big Creek	14,190	200	80
Groveland	18,184	25	5
Buck Meadows	30,378	300	60
Bull Creek	19,182	200	40
Anderson Valley	12,265	250	75
Total	234,960	3,410	1,860

* Area is gross acreage of unit.


20'
10'
120° 00'
50'
38° 20'
38° 10'
T.7 N.
T.6 N.
T.5 N.
T.4 N.
T.3 N.
T.2 N.
R.14 E.
R.15 E.
R.16 E.
R.17 E.
R.18 E.
R.19 E.
R.20 E.
LEGEND
UNIT BOUNDARY
SAMPLE PLOT
PROPOSED STANISLAUS EXPERIMENTAL FOREST
N
UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT LABORATORY - BERKELEY, CALIFORNIA
1940
FOREST INSECT SURVEY
NORTH STANISLAUS INFESTATION AREA
MT. DIABLO BASE LINE
CALIFORNIA
SCALE
In. 0 ½ 1 2 3 4 Miles
HERMIT SPRING
FOLSOM
MIDDLE FORK MOKELUMNE R.
SOUTH FORK MOKELUMNE R.
MOKELUMNER STANISLAUS
CLARK FORK
DARDANELLES
BRIGHTMAN
DORRINGTON
SOUTH GROVE CREEK
SKULL
NORTH STANISLAUS
SOUTH STANISLAUS
DRY FORK
MIDDLE
KNIGHT
MEADOW
PINE
BARN
DODGE
RIDGE
CLAVEY
CONFIDENCE
YONS
LONG
TUOLUMNE R.
Deadman Flat
SALT SPRINGS RESERVOIR
Garnett Hill
Moore Cr.
Jelmini Basin
MATTLEY
Devils 4860 Nose
Hunter Flat
Blue
Bear
Figer
Mid.
Creighton
Mitchell Mill
Licking Fork
Fort Mt
Blue Mt.
LOOKOUT
Dorrington
Hunter Mdw.
SS-6
Calaveras Big Trees HOTEL
Calaveras Grove
Squaw Hollow
Big Trees S.P.
MANUEL MILL
Oxendine
SS-1
Sheep Ranch
Avery
HUNTER RESVR.
CALAVERAS
Darby Knob
Mt. Knight
FOREBAY
Forebay
Stanislaus
Murphy
MERCER CAVE
Douglas Flat
Vallecito
MOANING CAVE
Italian Bar
Mt. Elizabeth LOOKOUT
4938
Petersen
Yankee Hill
Parrott
FERRY BR.
Springfield
Columbia
Bald Mt.
Belleview
ROBINSON FERRY
NATURAL BRIDGE
ABBOTT FERRY
Confidence
TWAIN HARTE LODGE
Mt. Lewis
Mt. Provo
The Basin
GRUWELL
ROSASCO
Foheys Mdw.
Leland Mdw.
Pikes Pk.
Bull Run Pk.
Pine Crest
Strawberry Pk.
Strawberry L.
Bell Mdw.
Cold Spr.
Stoddard Spr.
Saints Rest
Browns Mdw.
Dodge Mdw.
Bourland Mt.
Clover Mdw.
Montgomery Mdw.
Dome Rock
Eureka
Red Pk.
9951
Bald Pk.
Iceberg Pk.
9751
Disaster Pk.
10022
The Iceberg
Highland Lks.
Gardner Mdw.
Arnot Pk.
10036
Corral Mdw.
Big Prather Mdw.
Lit Prather Mdw.
Randalls Mdw.
Shufly Mdw.
Sands Mdw.
Horse Mdw.
Bummers Flat
Twin Mdws.
Gardner Mdw.
Kennedy Mdw.
Salt Spr.
Cottage Spr.
Hermit Spr.
Big Meadow Cr.
Big Meadow
Moran L.
Rhodes L.
Clear L.
Lily L.
Strawberry L.
Pine Crest L.
Catfish L.
Lit. Rattlesnake
Rattlesnake Cr.
Beaver Cr.
Lily Cr.
Cascade Cr.
Mutton Camp
Herring Res.
Hells Half Acre Br.
Cow Cr. P.C.B.
Cow Cr. G.S.
Slash Disposal
Dry Meadow Lookout
Ariola Camp
Pinecrest Lookout
Spicer Mdw. Resvr.
Dardanelles Cone
9502
Niagara Creek
Deadman Cr. P.C.B.
Kennedy
Wood Camp
Mill Cr. Ground
Douglas Resort
Bakers Station
Walters Camp
Gans
Bailey
Person Mill
Smith Hayward Cr.
Ramsey
Solinsky
Licking Fork G.S.
Buck Ranch G.S.
S. Fk. Bridge
Airola Cr.
Airola Camp
Steel
Whittakers Dardanelles
Grohls Upper Camp
Cordes Camp
Schwoerer Camp
Wheats G.S.
Wet Mdw.
Wagner Camp
Wagner Bridge
Douglas Cr.
Dardanelles Cr.
McCormick Cr.
Drew
Arnot Cr.
Fork
Hunter Bridge
Brunner Camp
Fenness
Grizzly Mdw.
Lit. Beaver Cr.
N. Fk.
S. Fk.
Cow
Griswold
Grobl
Soap Cr.
Dry Meadow Cr.
Chipman Cr.
Herring
Gooseberry Camp
Spring Gap R.H.
Spring Gap
Baker Bridge
Strawberry Resort
Penstock
Pitch
Sand Bar Flat
Camp Crandall
Shaffer Brady
Schoettgen
Kunz Mill
Busse
Dodge
Cold Spr. Mill
Coffin
Hollow
Clear L.
Rock Cr.
Trout
Rush Cr.
Lyons Cr.
Long Barn
Merrill Spr.
Empire Mill
Willer
Williams
Dry Cr.
Deer
Eagle
Rose
Knight
Spaulding
Gold Crater Mine
Contention Mine
Stage
Jupiter
Kinney D.S.
Star Mine
Sonnet
Keltz Mine
American Camp G.S.
American Camp Look-out
Riverside Mine
Lyons Dam
S. Fk. Bridge
Halls Crossing Bridge
Center Camp G.S.
Sledge Mine
Keen Mine
Green Mine
Hulls
Kewin Mill
Fivemile Cr.
Moaning Cave
Coyote
Wrights
Lily Cr.
Hull
Fivemile
Loney
Lost Cr.
Lit. Reynolds Cr.
Reynolds
Clavey
Bourland
Clavey Mdw.
Rock Cr.
Trout
Best
Mul
Cascade
Patter
Lily
Niagara Cr.
McCormick
Brightman Flat G.S.
Dardanelles Resort
State Hwy Camp
Deadman Cr. P.C.B.
Kennedy
Douglas
Bakers Station
Arnot
Drew
Wheats
Dardanelles
McCormick Cr.
Iceberg G.S.
Fork
Clark
Douglas
Bald Pk.
Red Pk
9951
Disaster Pk
10022
Iceberg Pk
9751
Arnot Pk
10036
Gardner Mdw.
Highland Lks.
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Shufly Mdw.
Sands Mdw.
Horse Mdw.
Bummers Flat
Twin Mdws.
Clover Mdw.
Montgomery Mdw.
Dome Rock
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Salt Spr.
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Steel
Whittakers Dardanelles
Grohls Upper Camp
Cordes Camp
Schwoerer Camp
Wheats G.S.
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Wagner Camp
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Douglas Cr.
Dardanelles Cr.
McCormick Cr.
Drew
Arnot Cr.
Fork
Hunter Bridge
Brunner Camp
Fenness
Grizzly Mdw.
Lit. Beaver Cr.
N. Fk.
S. Fk.
Cow
Griswold
Grobl
Soap Cr.
Dry Meadow Cr.
Chipman Cr.
Herring
Gooseberry Camp
Spring Gap R.H.
Spring Gap
Baker Bridge
Strawberry Resort
Penstock
Pitch
Sand Bar Flat
Camp Crandall
Shaffer Brady
Schoettgen
Kunz Mill
Busse
Dodge
Cold Spr. Mill
Coffin
Hollow
Clear L.
Rock Cr.
Trout
Rush Cr.
Lyons Cr.
Long Barn
Merrill Spr.
Empire Mill
Willer
Williams
Dry Cr.
Deer
Eagle
Rose
Knight
Spaulding
Gold Crater Mine
Contention Mine
Stage
Jupiter
Kinney D.S.
Star Mine
Sonnet
Keltz Mine
American Camp G.S.
American Camp Look-out
Riverside Mine
Lyons Dam
S. Fk. Bridge
Halls Crossing Bridge
Center Camp G.S.
Sledge Mine
Keen Mine
Green Mine
Hulls
Kewin Mill
Fivemile Cr.
Moaning Cave
Coyote
Wrights
Lily Cr.
Hull
Fivemile
Loney
Lost Cr.
Lit. Reynolds Cr.
Reynolds
Clavey
Bourland
Clavey Mdw.
Rock Cr.
Trout
Best
Mul
Cascade
Patter
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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT LABORATORY - BERKELEY, CALIFORNIA

1940

FOREST INSECT SURVEY

STANISLAUS-YOSEMITE INFESTATION AREA

MT. DIABLO MERIDIAN, CALIFORNIA

LEGEND

N

SCALE 0 ½ 1 2 3 4 INCHES MILES

SAMPLE PLOT

UNIT BOUNDARY

10' 120° 00' 50' 40'

38° 00'

50'

40'

T. 3 N.

T. 2 N.

T. 1 N.

T. 1 S.

T. 2 S.

T. 3 S.

R. 16 E. R. 17 E. R. 18 E. R. 19 E. R. 20 E. R. 21 E. R. 22 E.